



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D205-634-041
Job Sheet 179009



Part No: D205-634-041

Job Qty: 1 ea

Part Name: Replacement Skidtube with Standard Wearplates Fits LH or RH



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/11/18

Job Tracking No:

Due Date: 6/28/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG D2580 REV H SHEETS 1,2,3,8 IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD IPP Rev. O 06.02.28 Added paperwork EC IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q 10.12.01 as per chg003 DD verf:EC IPP REV:R 12.01.23 AS PER ECN11-684 VERF:EC IPP REV:S 17.12.08 REMOVE GASKET AS PER INTUITIVE INFO DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		6/28/18	0.00	0.00	Start Up Skidtubes		DD
110	CNC Bend Skidtubes	1 pcs		6/28/18	0.00	0.65	CNC Bend Skidtube		MEAG DD
120	Skidtubes	1 pcs		6/28/18	0.00	2.89	Skidtubes-2		DD
130	QC	1 pcs		6/28/18	0.00	0.00	QC5		BB
140	Skidtubes	1 pcs		6/28/18	0.00	2.89	Skidtubes-2		BB DAS
150	QC	1 pcs		6/28/18	0.00	0.00	QC10		DAS 38
160	QC	1 pcs		6/28/18	0.00	0.00	QC5		38 3-85
170	HandFinish	1 pcs		6/28/18	0.00	1.31	HandFinish1		SA 18-07-11
180	Powdercoat	1 pcs		6/28/18	0.00	0.34	Powdercoat1		SL 18-7-11
190	QC	1 pcs		6/28/18	0.00	0.00	QC3		UL 18-7-11
200	HandFinish	1 pcs		6/28/18	0.00	1.31	HandFinish4		UL 18-7-12
210	QC	1 pcs		6/28/18	0.00	0.00	QC5		38
220	Packaging	1 pcs		6/28/18	0.00	0.00	Packaging3-1		SL JUL 13 2018
225	DC	1 pcs		6/28/18	0.00	0.00	DC		NIR
230	QC21-FG	1 Ea		6/28/18	0.00	0.00	QC21		me 18.07.13

Part Op 110 - 1-Bend as per program D2580.C on CNC Bender and Folio 16 2-Cut tubes as per Dwg. D2580 3- scribe batch# in Descriptions: aft end of tube

120 - 1- Deburr ends and remove bending marks 2- Prepare tube for welding as per QSI 004

140 - 1-Weld step D2576 as per Dwg. D2580 and QSI 004 2-Grind welds on step as per Dwg D2580 3-Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimentation. 4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web.Deburr 5-Drill pilot holes for aft cap using DT 8215Open holes to 0.208". Deburr 6-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr

170 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

180 - START TIME: 1.50 OVEN TEMPERATURE: 320° FINISH TIME: 1.00.

200 - 1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates A/R Sikaflex-291 (Sikaflex expire date: 1912 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580 3-Inspect for foreign object per QSI 024 4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive A/R Sikaflex-291 (Sikaflex expire date: 138839 5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: 508044

210 - Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION		AGAINST DEPARTMENT/PROCESS			
	Rework ☐	Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	
	Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	
	Use-as-is ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	
	Suspected Unapproved ☐	Large Fab ☐	Composite ☐	Supplier ☐		

Date :	Step #:	QTY Effective :	MRB (QSI042) Approval
--------	---------	-----------------	-----------------------

Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

Root Cause Environment ☐ No Re-ve ☐ Design ☐ Operator ☐ Doc/Data ☐ Offset/Se ☐ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☐ Use for Te ☐ Internal Transport ☐ Poor Infor ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product In ☐ Substation ☐ Process Im ☐ Past Expiry Date ☐ Manufactu ☐ Misidentified ☐ Past Due ☐		s/Surge ☐ Positioned Wrong ☐ ram ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ ck Pulled ☐ Part Lost/Missing ☐ uence ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ n ☐ Turning Sequence ☐ /off center ☐
--	--	--

Dart Aerospace Ltd.
 1270 Aberdeen Street
 Newbury, ON K6A 1K7
 CANADA
 TEL: 1 813 632-8200
 Email: sales@dartaero.com
 www.dartaerospace.com



Container No: S090172

Part: D205-634-041

Job No: 179009

Serial No/Batch: S090172

Revision: H

Inspector:

Exp Date:

Instructions:

Date: 07/09/18

004335

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D2580-1	205 Bent Tube	1 Ea (1 ea)	90-Start up Operation	5084330
D2576-3	Step (Machining Detail)	1 Ea (1 ea)	140-Skidtubes	5069014
D4202-1	Spacer	20 Ea (20 ea)	140-Skidtubes	5054571
ALS7-1032-130	Rivnut	50 Ea (50 ea)	200-HandFinish	5045668
AN3-5A	Bolt	2 Ea (2 ea)	200-HandFinish	5041106-1
AN3C4A	Bolt	50 Ea (50 ea)	200-HandFinish	5068642
D2594-1	Plug	16 Ea (16 ea)	200-HandFinish	5059021
D2594-3	O-Ring	16 Ea (16 ea)	200-HandFinish	5049935
D2855	Cap	1 Ea (1 ea)	200-HandFinish	5066018
D3564-11	Wearplate Aft	1 Ea (1 ea)	200-HandFinish	5045366
D3564-13	Wearpad Fwd	1 Ea (1 ea)	200-HandFinish	5055900
D3564-5	Wearplate Center	1 Ea (1 ea)	200-HandFinish	5077530
D3564-9	Wearplate Fwd	1 Ea (1 ea)	200-HandFinish	5054592
NAS1149C0332R	Washer	50 Ea (50 ea)	200-HandFinish	5056493
NAS1149D0332J	Washer	2 Ea (2 ea)	200-HandFinish	5020606-1

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D2580-1	1	0	0
140-Skidtubes	D2576-3	1	34	0
	D4202-1	20	236	0
200-HandFinish	ALS7-1032-130	50	1,467	0
	AN3-5A	2	238	0
	AN3C4A	50	1,497	0
	D2594-1	16	345	0
	D2594-3	16	603	0
	D2855	1	84	0
	D3564-11	1	6	0
	D3564-13	1	5	0
	D3564-5	1	9	0
	D3564-9	1	8	0
	NAS1149C0332R	50	5,893	0
	NAS1149D0332J	2	1,829	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mis-labeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

ITEM	QTY -041	QTY -045	QTY -047	QTY -049	PART NUMBER	DESCRIPTION
1	X				D2580-041	SKIDTUBE ASSEMBLY
2		X			D2580-045	SKIDTUBE ASSEMBLY
3			X		D2580-047	SKIDTUBE ASSEMBLY
4				X	D2580-049	SKIDTUBE ASSEMBLY
20	1	1	1	1	D2500-1-190	EXTRUSION
21			16	16	D2570	BUSHING
22	1	1	1	1	D2576-3	STEP
23		4			D2579	SPACER
24	16	16	8	8	D2584-1	PLUG
25	16	16	8	8	D2584-3	O-RING
26	1	1	1	1	D2596	205 WEB
27	1	1	1	1	D2855	AFT CAP
28	1	1			D3584-5	WEARSHOE
29	1	1			D3584-9	WEARSHOE
30	1	1			D3584-11	WEARSHOE
31	1	1			D3584-13	WEARSHOE
32	20	20	24	24	D4202-1	SPACER
33			1		D4408-041	WEARPLATE ASSEMBLY
34			1		D4408-043	WEARPLATE ASSEMBLY
35				1	D5081-1	FWD WEARPLATE
36				1	D5081-3	AFT WEARPLATE
50	50	50			ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
51	50	50			AN3C4A	BOLT
52	2	2	2	2	AN3-5A	BOLT
53			8	8	AN4-45A	BOLT
54	50	50			NAS1149C0332R	WASHER (AN980C10L)
55	2	2	2	2	NAS1149D0332J	WASHER (AN980JD10L)
56			8	8	MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2580 WEB
POWDER COAT (-041/-047/-049) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
POWDER COAT (-045) GREEN SANDTEX (REF 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2580-041 = 33.7 lbs
D2580-045 = 33.7 lbs
D2580-047 = 45.1 lbs
D2580-049 = 32.0 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2580 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 80 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL 20.287 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241-291.
- 12) INSERT D2594-1 PLUG C/W D2584-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (18 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047/-049)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 179002 MWS
180612

RELEASED

2017 JUL 05 4P
ECN7-518

H	SHEET: PL DELETE D3588-1/-5/-13 GASKETS, WEIGHTS UPDATED ACCORDINGLY. SHEETS 2 & 4 PICTORIAL UPDATE FOR REMOVAL OF GASKETS	SAD	17.06.09
G	ADDED -049, -047 WEIGHT UPDATED PER DSI 9598	AJS	14.04.09
F	INCORPORATE DEO D2580-E-1 PER PAR12-218	DC	13.06.20
E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9084/9087	CP	06.08.26
B	AS MANUFACTURED	DS	06.12.02
A	NEW ISSUE	DS	06.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	DS		
DRAWN	SAD		
CHECKED	13		
MFG. APPR.	13		
APPROVED	13		
DE APPR.	13		
DATE	17.06.09		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D2580 205 SKIDTUBE ASSEMBLY REV. H SHEET 1 OF 9 SCALE NTS COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD			

DQA: _____ Date: _____

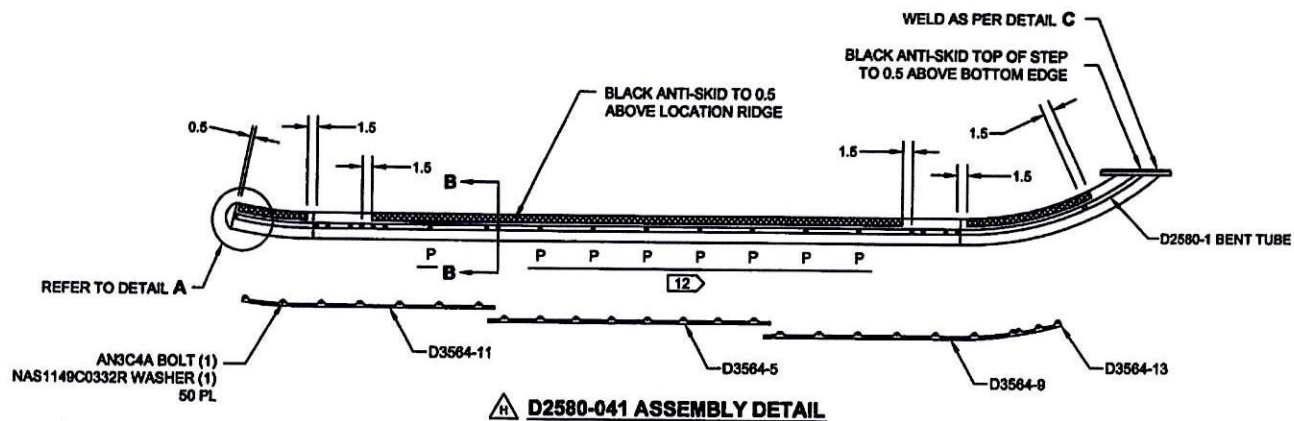


WORK ORDER NON-CONFORMANCE / UPDATE

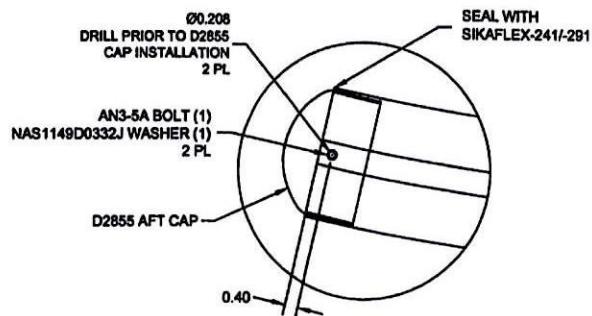
QA Closed: _____ Date: _____

Work Order update only ☐

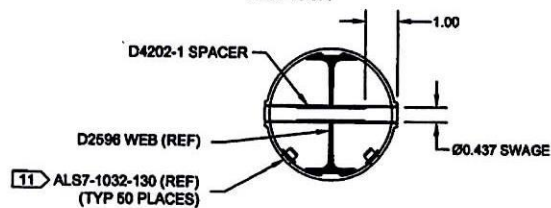
Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					



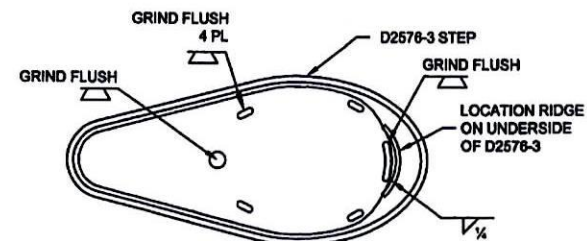
DETAIL A
SCALE 5X



SECTION B-B
SCALE 5X



DETAIL C
SCALE 5X



RELEASED

2017 JUL 05

DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	<i>[Signature]</i>	DRAWING NO. D2580	REV. H SHEET 2 OF 9
MFG. APPR.	<i>[Signature]</i>	TITLE	SCALE
APPROVED	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
DE APPR.	<i>[Signature]</i>	COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PROPRIETARY AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	
DATE	17.06.09		

DQA: _____ Date: _____

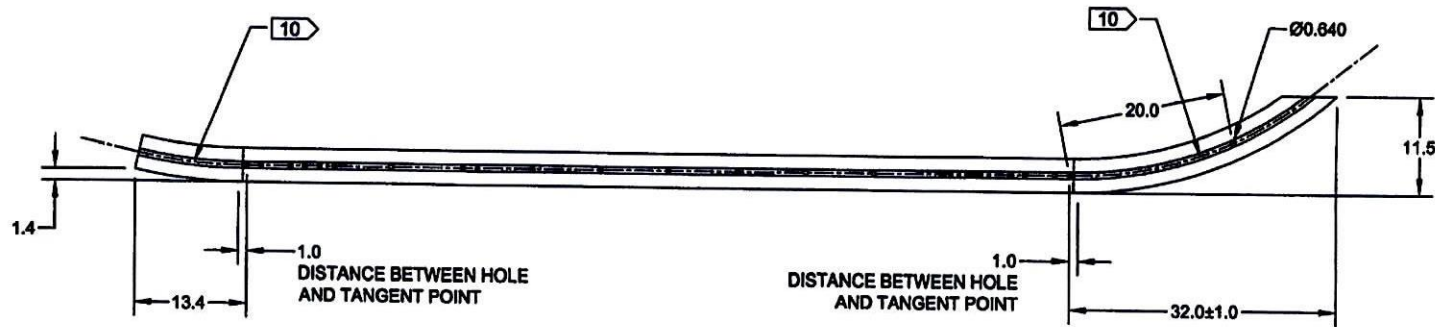


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					



D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2017 JUL 05 4P

DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	<i>[Signature]</i>	DRAWING NO. D2580	REV. H SHEET 3 OF 9
MFG. APPR.	<i>[Signature]</i>	TITLE	SCALE
APPROVED	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
DE APPR.	<i>[Signature]</i>	COPYRIGHT © 1986 BY DART AEROSPACE LTD	
DATE	17.06.09	THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DQA: _____ Date: _____

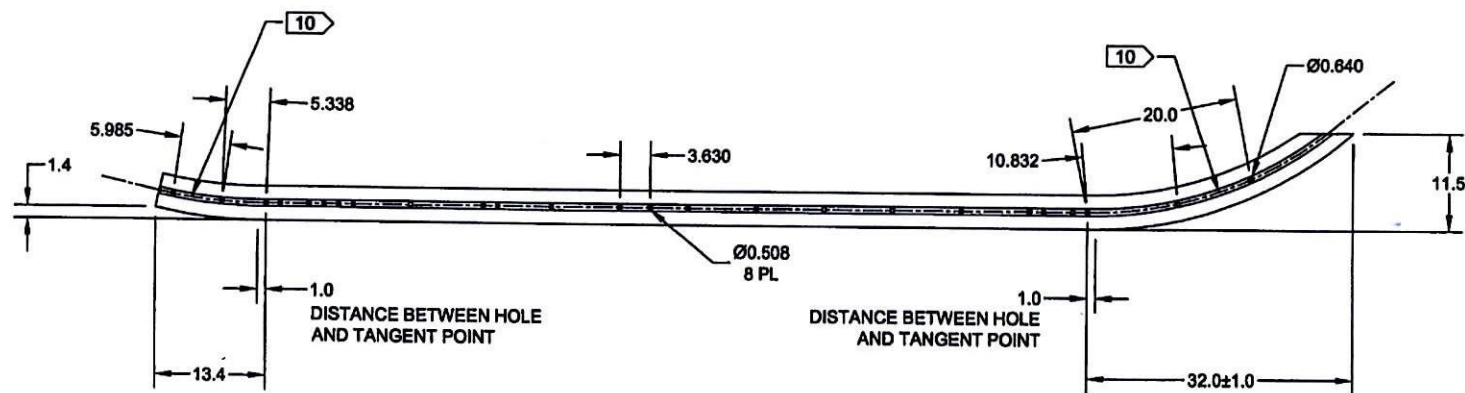


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval 	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					



D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2017 JUL 05

DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	<i>MB</i>	DRAWING NO. D2580	REV. H SHEET 8 OF 9
MFG. APPR.	<i>JS</i>	TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
DE APPR.	<i>CH</i>	COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRELIMINARY AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	17.06.09		

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION		AGAINST DEPARTMENT/PROCESS							
	Rework	☐	Skid-tube	☐	Cross tube	☐	Water Jet	☐	Engineering	☐
	Scrap	☐	Machining	☐	Small Fab	☐	Prod. Eng. Coord.	☐	Quality	☐
	Use-as-is	☐	Thermoforming	☐	Finishing	☐	Rec/Store/Packaging	☐	Other	☐
	Suspected Unapproved	☐	Large Fab	☐	Composite	☐	Supplier	☐		☐

Date :	Step #:	QTY Effective :	MRB (QSI042) Approval
--------	---------	-----------------	-----------------------

Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

Root Cause			FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date	☐	Manufacturing Process	☐							
Misidentified	☐	Past Due	☐	OTHER :						